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Subject: Spring 2017 LED Update From Road Solar Lighting

Date: Sunday, April 16, 2017 11:53:08 AM

Attachments: RSL LOGO AA.png

RSL Road Solar Lighting
Solar LED Light Expertise

"Our goal at Road Solar Lighting is to assist municipal taxpayers reduce their municipal taxes through LED

technology while simultaneously protecting the environment". Carl A. Lambert - Road Solar Lighting Managing Director

What is Road Solar Lighting?

~ Advise, develop and implement a LED retrofit plan with municipal leaders to protect their citizens from significant energy price increases.

~ Assist municipalities reduce the cost of their street, park, building and walkway lighting costs by 55% - 65%.

~ Minimize the carbon foot print of municipalities with LED green energy.

~ Offer the strongest guarantees of LED solutions in the world.

~ Distribute the latest and most advanced LED products available.

Dear Municipal Leaders,

As municipalities face growing challenges in matching revenues with expenditures, technology has developed significantly in one area to assist municipal taxpayers reduce their taxes. Advances in Light Emitting Diodes (LEDs as they are commonly known) have significantly lowered the cost for municipalities to retrofit their street lighting inventory from older, high energy consuming lighting. For those municipalities that have retrofitted the savings have been significant. Not only did those municipalities reduce the cost of their street lighting by a minimum of 55% - 65%, they did so with the added benefit of leaving less of a carbon foot print which is harmful for the environment.

Our Corporate Mission at Road Solar Lighting is **Assist municipal taxpayers reduce their municipal taxes through LED technology while protecting the environment**.

For that reason Road Solar Lighting (RSL) distributes the latest LED street lighting products available. Traditional and solar powered LEDs. The time and expense to install LED street lights has decreased significantly over the last 3 years. Also it is important to note Road Solar Lighting (RSL) uses a welded one-piece power bracket that allows us to guarantee our street lights for 10 years. Lastly the savings from traditional LEDs is 55% to 65%, and from solar powered LEDs 100%. Both allow a fast recoup of the initial investment to retrofit.

For example if a municipality spends $10 million dollars annually to power their street lights, the savings with traditional LEDs will be $5.5 - $6.5 million. In addition several jurisdictions purchase energy from other municipalities that generate excess power. The LEDs that RSL distributes provide an opportunity to sell excess energy they generate - converting each street light from a cost centre for the municipality to a revenue centre.

There is obviously a growing awareness of the opportunity LEDs present municipalities to dramatically shift a costly expenditure (street lighting) to a less costly one as New York Los Angeles Edmonton Calgary Hamilton, and cities in California Europe and Asia are now benefiting by retrofitting their street lights to LEDs.

LEDs provide a unique opportunity to assist taxpayers reduce their taxes; and allow municipal leaders staff and stakeholders to leave a legacy for generations to come by protecting the environment future generations will inherit. To find out how we may assist your street lighting needs, please contact us at your convenience through our Contact Page on our website www.roadsolarlighting.ca. Please find below a discussion of the benefits of retrofitting to LED lights.

Retrofit Projects

What is a Retrofit?

What exactly is a "Retrofit?" In our business a retrofit or "lighting upgrade" is the process of evaluating the current lighting technology in your facility, and designing a system that performs most efficiently for the work applications in your building; such as manufacturing, educational or office space. Each of these applications requires a different type and quality of light. LED Eco-logic works closely with our clients and utility companies to achieve the most attractive, functional lighting system which also achieves maximum energy savings. You'll benefit by having a safe, efficient lighting system and a partner with over fifteen years of experience.

The Retrofit Companies' mission is to provide comprehensive environmental solutions and resource management by instituting energy saving and recycling systems. LED Eco-logic primarily focuses on helping its clients establish a turn-key service to address their facilities lighting and related waste needs. This means giving each client the best lighting system through retrofitting, helping to maintain that system for optimum performance and also to assist with the disposal and compliance needs regarding Universal Wastes such as fluorescent lamps and ballasts.

The Benefits of Lighting Retrofit Projects

It is much easier to convince a business to invest in a project with environmental benefits if it will save that business money. Lighting retrofit projects often fit into this category, especially in the case of industrial buildings.

Typically, in a well-designed project, lighting energy costs can be reduced by 40-60 percent, and sometimes more. These savings are achieved by a combination of replacing the primary working components within light fixtures (i.e. newer energy-efficient lamps and ballasts); redesigning fixtures for a different configuration of lamps, ballasts, and reflectors; and replacing existing fixtures with new, more efficient ones. Additional savings may come from installing occupancy sensors so that lights can be automatically turned off when no one is in an area.

In addition, a lighting retrofit project can save a business on maintenance costs—both materials and labor. This is achieved through a combination of products with longer lives and/or a reduced number of components.

The cost-effectiveness of a lighting project is, of course, directly influenced by the number of hours that the lights are actually used. If a factory has many lights, but they are only turned on for one shift, then the savings may not warrant the cost of upgrading. The more the lights are on, the greater the energy savings opportunity.

The Financial Decision-making Process

Before deciding to embark on a lighting upgrade, a company must determine whether the payback period is attractive enough to warrant the purchase. For example, a $100,000 lighting project with $40,000 annual energy savings has a 2.5-year payback. In industrial facilities, if the payback is greater than three years, there is usually not much interest. For some businesses the payback period required may be considerably shorter. Some companies put additional variables into the payback equation based on their unique accounting methods or tax situations, making it even more challenging to provide a payback number that is acceptable.

While most businesses base lighting retrofit project decisions almost entirely on financial criteria, some factor improved light levels or light quality into the decision. The goal in lighting retrofit design is to achieve an appropriate balance between energy savings and light quantity/quality. Environmental benefits are usually not a significant part of the decision-making process, although some companies will post the environmental benefits of a lighting project (reduced electricity generation = reduced pollution) for their employees to see and/or publish it in corporate annual reports.

When all of the costs associated with a lighting project—material, labor, project management, trash disposal, lamp recycling, lifts, etc.—are added up, the project often becomes too expensive to be approved. Fortunately, the many utility companies offer financial incentives in the form of rebates to encourage facility owners to undertake lighting retrofit projects as well as other energy conservation measures. The current industrial rebate programs provide sufficient incentives to "buy down" the project cost to levels that meet many businesses' payback requirements. Hopefully these programs will not go away. They are achieving the desired result of encouraging many businesses to replace older inefficient lighting components with new state-of-the-art technologies and save millions of kilowatt hours of electricity annually.

What is an LED?

LEDs may be little, but new high-brightness models are producing a considerable amount of light.

First used as status and indicator lamps, and more recently in under-shelf illumination, accent lighting, and directional marking applications, high-brightness LEDs have emerged within the last six years. But only recently have they been seriously looked upon as a feasible option in general purpose lighting applications. Before you recommend or install this type of lighting system, you should understand the basic technology upon which these devices are based.

Light-emitting diodes (LEDs) are solid-state devices that convert electric energy directly into light of a single color. Because they employ “cold” light generation technology, in which most of the energy is delivered in the visible spectrum, LEDs don't waste energy in the form of non-light producing heat. In comparison, most of the energy in an incandescent lamp is in the infrared (or non-visible) portion of the spectrum. As a result, both fluorescent and HID lamps produce a great deal of heat. In addition to producing cold light, LEDs:

- Can be powered from a portable battery pack or even a solar array.
- Can be integrated into a control system.
- Are small in size and resistant to vibration and shock.
- Have a very fast “on-time” (60 nsec vs 10 msec for an incandescent lamp).
- Have good color resolution and present low, or no, shock hazard.

The centerpiece of a typical LED is a diode that is chip-mounted in a reflector cup and held in place by a mild steel lead frame connected to a pair of electrical wires. The entire arrangement is then encapsulated in epoxy. The diode chip is generally about 0.25 mm square. When current flows across the junction of two different materials, light is produced from within the solid crystal chip. The shape, or width, of the emitted light beam is determined by a variety of factors: the shape of the reflector cup, the size of the LED chip, the shape of the epoxy lens and the distance between the LED chip and the epoxy lens. The composition of the materials determines the wavelength and color of light. In addition to visible wavelengths, LEDs are also available in infrared wavelengths, from 830 nm to 940 nm.

LED Tube Lighting

High efficiency LED Tubes, giving similar output to standard fluorescent tubes, yet with a fraction of the power consumption and a far longer operating life. Available in all common sizes, these tubes are ideal for home and office use, resulting in massive savings in electricity costs.

Thank you for your time. If you have any questions regarding Light Emitting Diodes (LEDs), or Road Solar Lighting please feel free to contact us. If you would like to not receive future updates on LED solutions, please inform us.

Kindest Regards,

Carl A. Lambert

Managing Director

Road Solar Lighting

www.roadsolarlighting.ca